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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/911,963	07/23/2001	James B. Terry	1391-10210	7967
23505	7590	10/28/2003	EXAMINER	
CONLEY ROSE, P.C. P. O. BOX 3267 HOUSTON, TX 77253-3267			LEE, JONG SUK	
			ART UNIT	PAPER NUMBER
			3673	

DATE MAILED: 10/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/911,963

Applicant(s)

TERRY ET AL.

Examiner

Jong-Suk (James) Lee

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 7, 10-13, 15, 17, 18, 20-25, 33-35, 38-62 and 64-74 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 64-67 and 71 is/are allowed.
- 6) ☒ Claim(s) 1-3, 7, 10-13, 15, 17, 18, 20-25, 33-35, 38-62, 68-70 and 72-74 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

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DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission (previously submitted amendment filed August 1, 2003) filed on August 1, 2003 has been entered.

2. Upon further search and consideration, allowable subject matter indicated in the previous office action mailed on May 6, 2003, such as the limitations as recited in claims 33-35 and 38-47, has been withdrawn in view of the newly found reference to Dorel to US 6,047,784. New ground of rejection based on the newly found reference is as follows.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 55 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

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1 failing to particularly point out and distinctly claim the subject matter which applicant regards as
2 the invention.

3 Re claim 55: The claim is dependent upon claim 19 which has been canceled. It appears to
4 be dependent upon claim 17 and has been treated as such. However, the limitation of claim
5 55 is similar to the limitation as recited in claim 17. It is suggested to be deleted to avoid
6 redundancy.

7 Appropriate amendment is required.

8
9 ***Claim Rejections - 35 USC § 103***

10 5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness
11 rejections set forth in this Office action:

12 (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
13 section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
14 such that the subject matter as a whole would have been obvious at the time the invention was made to a person
15 having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the
16 manner in which the invention was made.

17 This application currently names joint inventors. In considering patentability of the claims
18 under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was
19 commonly owned at the time any inventions covered therein were made absent any evidence to
20 the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor
21 and invention dates of each claim that was not commonly owned at the time a later invention was
22 made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35
23 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).
24

25 6. Claims 1, 2, 10, 12, 13, 15, 17, 18, 20, 21, 23-25, 33-35, 38-52, 55, 56, 57, 61, 62, 68-70

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1 and 72-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dorel (US 6,047,784)
2 in view of Thomeer et al.'003 (US 5,828,003).

3 Dorel disclose an apparatus for directional drilling comprising: a coiled tubing/tube (20)
4 which is a tube/string of tubular members, data transmission conductor/electrical control wireline
5 (5); a drill bit/ a member of displacing formation (15); a bottom hole assembly (21) attached to
6 the downhole to the string and to the well apparatus/logging tool (18), the bottom hole assembly
7 including a propulsion system/prime mover/drilling assembly (11) with a power section/mud
8 motor (13) which is powered by the fluids circulating through the coiled tubing; a steering
9 assembly/bend housing (12) with an electric motor (24) to adjust a bend angle with a universal
10 joint (90), the direction of drilling can be altered by the operation of the bend housing serving as a
11 three dimensional steering apparatus (see Figs. 1-4; col.3, lines 16-67; col.4, lines 1-67; col.5,
12 lines 1-67; col.6, lines 1-67; col.7, lines 1-67; col.8, lines 1-33).

13 However, Dorel fails to disclose or fairly suggest the coiled tubing is a composite pipe
14 including fibers wrapped in a predetermined pattern around the liner of the composite tube.
15 Thomeer et al.'003 discloses a composite coiled tubing comprising of a liner (76, 91, 99) with a
16 flowbore and layers of fibers (77-79, 92-95, 101-109) wrapped in a predetermined braided pattern
17 around the liner (76, 91, 99), a number of power conductors (105, 107) as depicted in Fig. 6e
18 and/or a conductor or fiber may be intrinsically manufactured in the composite coiled tubing (see
19 col.11, lines 12-34 and col.12, lines 43-58) and the layers of fibers may carry axial/tensile loads to

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1 the composite tubing; wherein a downhole assembly/tool (20) being connected to the composite
2 tubing (see Figs. 1-29; col.6, lines 4-33; col.7, lines 12-67).

3 Therefore, it would have been obvious to one of ordinary skill in the art at the time the
4 invention was made to replace Dorel's coiled tubing with the composite tubing as taught by
5 Thomeer et al.'003 in order to enhance the axial/tensile resistance for the composite tubing and
6 provide the space for flowing drilling fluid without interruption of the electric conductor lines.

7 With respect to the range of the modulus of elasticity, yield strain, yield stress of the
8 composite tubing and the pulling force on the string by means of the propulsion system, an artisan
9 within the ordinary skill in the art would have provided such a range as claimed in order to
10 enhance the directional drilling capability and control.

11
12 7. Claims 3, 7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dorel
13 as modified by Thomeer et al.'003, as applied to claim 1, further in view of Williams et al. (US
14 5,913,337). The teachings of Dorel modified by Thomeer et al.'003 have been discussed above.

15 However, the teachings of Dorel modified by Thomeer et al.'003 fail to disclose the range
16 of Young's modulus and density of the composite umbilical and a metallic conductor embedded in
17 a wall of the composite umbilical. Williams et al.'337 disclose a spoolable composite tubular
18 member with energy conductors comprising of a composite umbilical including non-metallic/fibers
19 having a modulus of elasticity which is 100,000 psi or greater, and including the metallic

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1 conductor (21) embedded in the wall of the composite umbilical (see Fig.11; col.3, lines 4-10;
2 col.4, lines 25-34; col.12, lines 46-60).

3 Therefore, it would have been obvious to one of ordinary skill in the art at the time the
4 invention was made to further modify the composite tube of Dorel, as modified by Thomeer et
5 al.'003, by replacing with the composite umbilical tube having a metallic conductor and a desired
6 modulus of elasticity as taught by Williams et al.'337 in order to enhance stiffness of the
7 composite umbilical by providing a uni-directional longitudinal stiffening material in the opposite
8 sidewalls of the composite umbilical and still provide a desired elasticity limit.

9 With respect to the density parameters for the composite umbilical, it would have been
10 obvious to one of ordinary skill in the art at the time the invention was made to have provided
11 Dorel's tubing modified by Thomeer et al.'003 with a certain density in order to provide a tube
12 that is light and easy to handle in spooling the composite umbilical.

13
14 8. Claims 22, 59 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over
15 Dorel as modified by Thomeer et al.'003, as applied to claim 21, further in view of Colin et
16 al.'145. The teachings of Dorel modified by Thomeer et al.'003 have been discussed above.

17 However, the teachings of Dorel modified by Thomeer et al.'003 fail to disclose a
18 connector for connecting lengths of the pipe. Colin et al.'145 disclose a connection device for a
19 cable incorporating optical fibers and metal conductors including the connector assembly as

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1 depicted in Fig. 1 (see Figs.1-3; col.2, lines 1-35).

2 Therefore, in view of Colin et al.'145, it would have been obvious to one of ordinary skill
3 in the art at the time the invention was made to further modify the composite tube of Dorel, as
4 modified by Thomeer et al.'003 by adding the connector device between the end of the composite
5 umbilical in order to efficiently provide the required length of the umbilical composite at the site.
6

7 9. Claims 53 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dorel as
8 modified by Thomeer et al.'003, as applied to claim 17 and 21 respectively, further in view of Wu
9 (US 5,438,267). The teachings of Dorel modified by Thomeer et al.'003 have been discussed
10 above.

11 However, the teachings of Dorel modified by Thomeer et al.'003 fails to disclose a
12 resistivity antenna being connected to the electronic section of the bottom hole assembly. Wu
13 discloses a bottom hole assembly including a processor/electronic section (51) having an
14 resistivity antenna as receivers (22, 26) to measure the resistivity of the well (see Fig. 1; col. 5,
15 lines 21-68; col.6, lines 1-20; col.8, lines 1-19).

16 Therefore, in view of Wu, it would have been obvious to one of ordinary skill in the art at
17 the time the invention was made to further modify the bottom hole assembly of Dorel, as modified
18 by Thomeer et al.'003 by adding the receiver and processor to the system in order to enhance the
19 control of the bottom hole assembly.

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1 10. Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dorel as modified
2 by Thomeer et al.'003, as applied to claim 17, and further in view of Dismukes (US 4,646,856).
3 The teachings of Dorel modified by Thomeer et al.'003 have been discussed above.

4 However, The teachings of Dorel modified by Thomeer et al.'003 fails to disclose or fairly
5 suggest the string of tubular members engineered to cause the string to achieve neutral buoyancy
6 in the fluids of the well and the specific density of the umbilical composites. Dismukes discloses
7 tubulars for directional drilling comprising of drill string/conduit, the conduit including the
8 cylinder designed to provide flotation to the conduit to cause it to be neutrally buoyant in drilling
9 fluid of the well (see Figs. 7-10; col.5, lines 30-56).

10 Therefore, in view of Dismuke, it would have been obvious to one of ordinary skill in the
11 art at the time the invention was made to further modify the composite tube of Dorel, as modified
12 by Thomeer et al.'003, by including the cylinder in order to provide substantial neutral buoyancy
13 to the umbilical in the drilling fluids.

14
15 ***Response to Arguments***

16 11. Applicant's arguments with respect to claims 1, 17 and 21 (independent claims) have been
17 considered but are moot in view of the new ground(s) of rejection.

18 However, with respect to the argument for the Thomeer et al.'003's composite coiled
19 tubing which will stand compression loads by a tubing injector to prevent buckling so that it is

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1 designed not for the tension loads but for the compression loads for the coiled tubing, the
2 composite tubing of Thomeer et al.'003 undergoes numerous bending events each item is run into
3 and out of the wellbore and it goes into tubing injector for entry into the wellbore, each
4 bending/buckling event is repeated in reverse when the tubing is later extracted (pulled) from the
5 well bore as mentioned in col.6, lines 24-33 in Thomeer et al.'003.

6
7 *Allowable Subject Matter*


8 12. Claims 64-67 and 71 would be allowable over the prior art of record.
9

10 *Conclusion*

11 13. Any inquiry concerning this communication or earlier communications from the examiner
12 should be directed to Jong-Suk (James) Lee whose telephone number is (703) 308-6777. The
13 examiner can normally be reached between the hours of 6:30AM to 3:00PM Monday thru Friday.
14 If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,
15 Heather C. Shackelford, can be reached on (703) 308-2978. The fax phone number for this
16 Group is (703) 872-9306.

17 Any inquiry of a general nature or relating to the status of this application or proceeding
18 should be directed to the Group receptionist whose telephone number is (703) 308-2168.

19 J. Lee /jjl
20 October 23, 2003
21
22
23


Jong-Suk (James) Lee
Patent Examiner
Art Unit 3673